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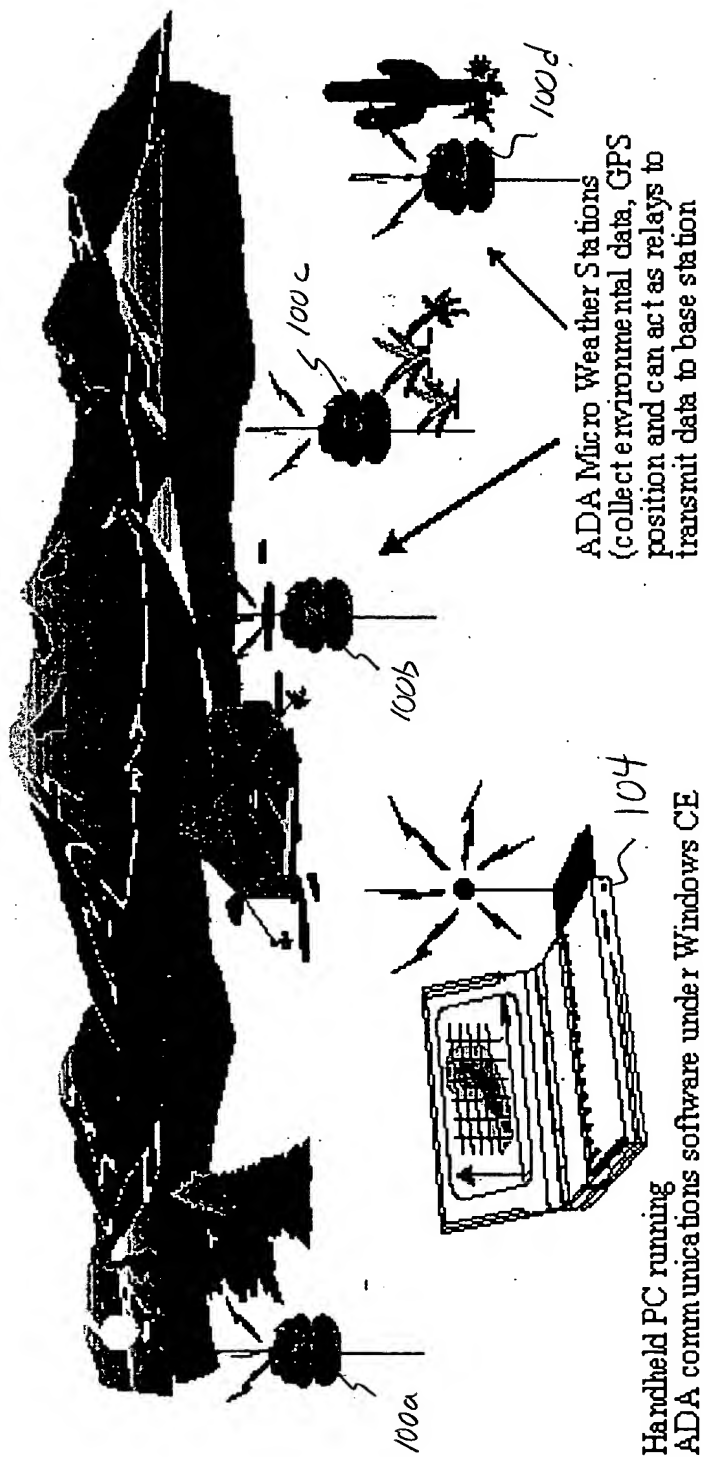


FIG. 1

Fourth
Sensor
Unit
254d

Second
Sensor
Unit
254b

Third
Sensor
Unit
254c

First
Sensor
Unit
254a

Base
Unit
250

Sixth
Sensor
Unit
254f

Fifth
Sensor
Unit
254e

FIG. 2

MSP Hardware and Firmware does not change even when new sensor modules are created

MSP Provides:

- 1) Environmental Measurements
- 2) Communications to base
- 3) GPS Locations

MSP Manages:

- 1) Total system power
- 2) Measurement Schedule(s)

Add-on modules allow end-users to configure the SAMS per mission requirements - CWA detection, radiation sensor, etc...

Electronics interface between add-on instruments and the MSP.

Arrangement allows for use of COTS instruments in add-on modules

Bottom plate of MSP is attached to bottom of stack of sensor modules

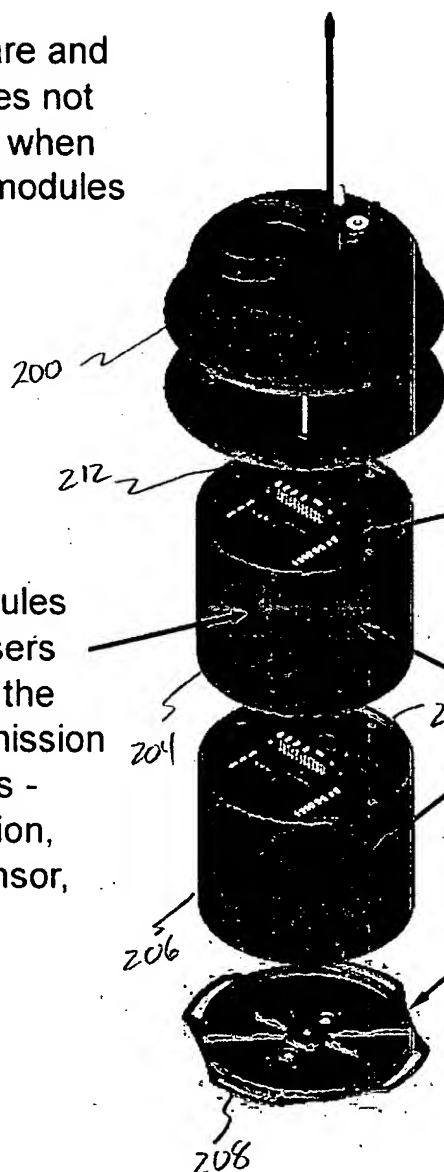
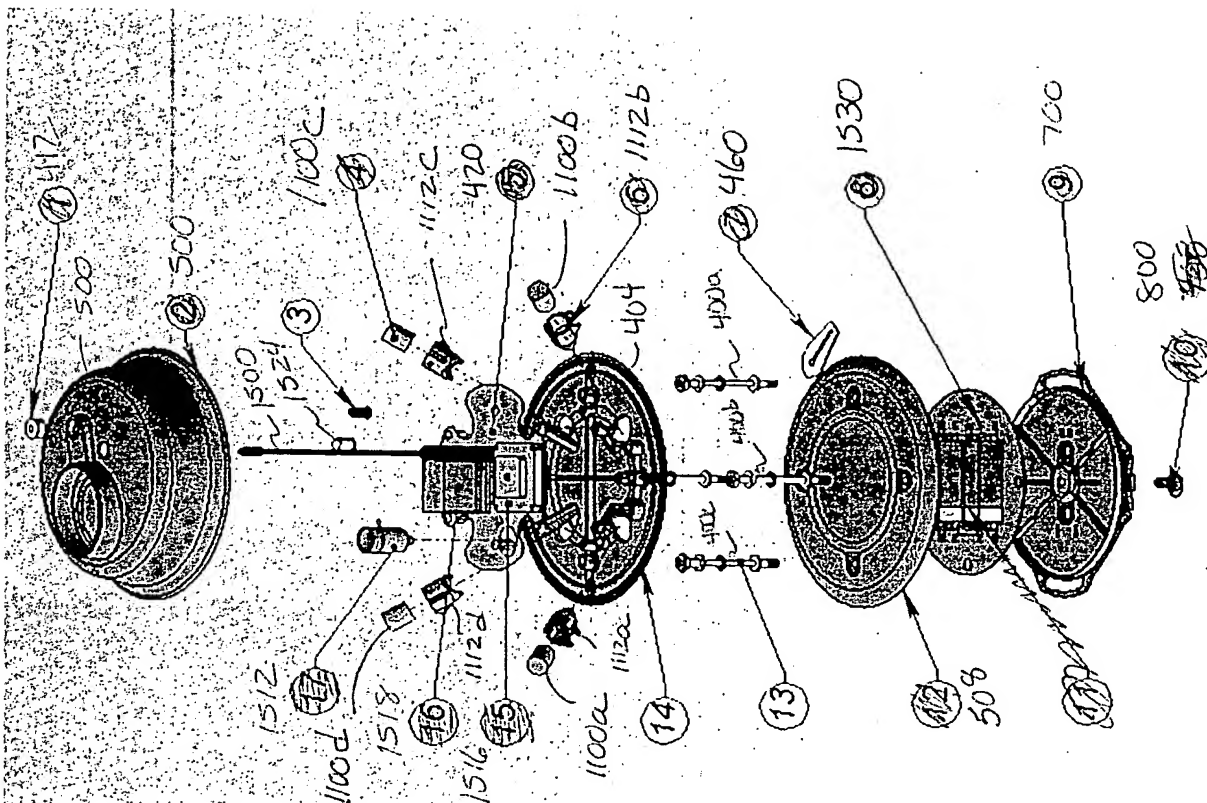


FIG. 3.



- 1—Bull's-eye level
- 2—Top shell
- 3—Incident radiation sensors
- 4—Ultrasonic transducer (x4)
- 5—Circuit board
- 6—Transducer mount
- 7—Shielded temperature sensor
- 8—Battery board
- 9—Bottom cover
- 10—Thumbscrew
- 11—Lithium-ion battery cells
- 12—Bottom wind deflector
- 13—Precision standoff
- 14—Upper wind deflector
- 15—GPS unit
- 16—Radio modem and antenna
- 17—Rain gauge

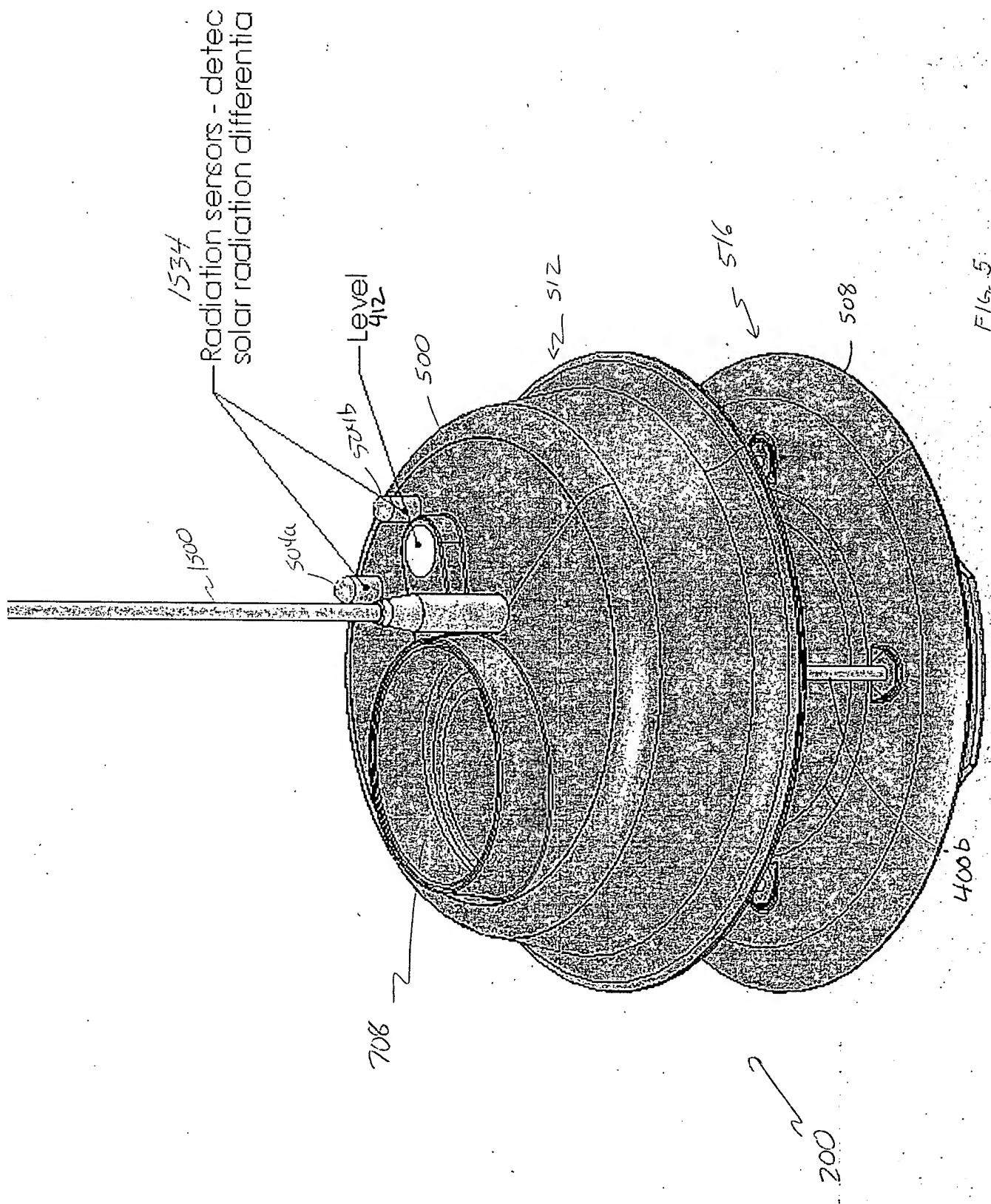


FIG. 5

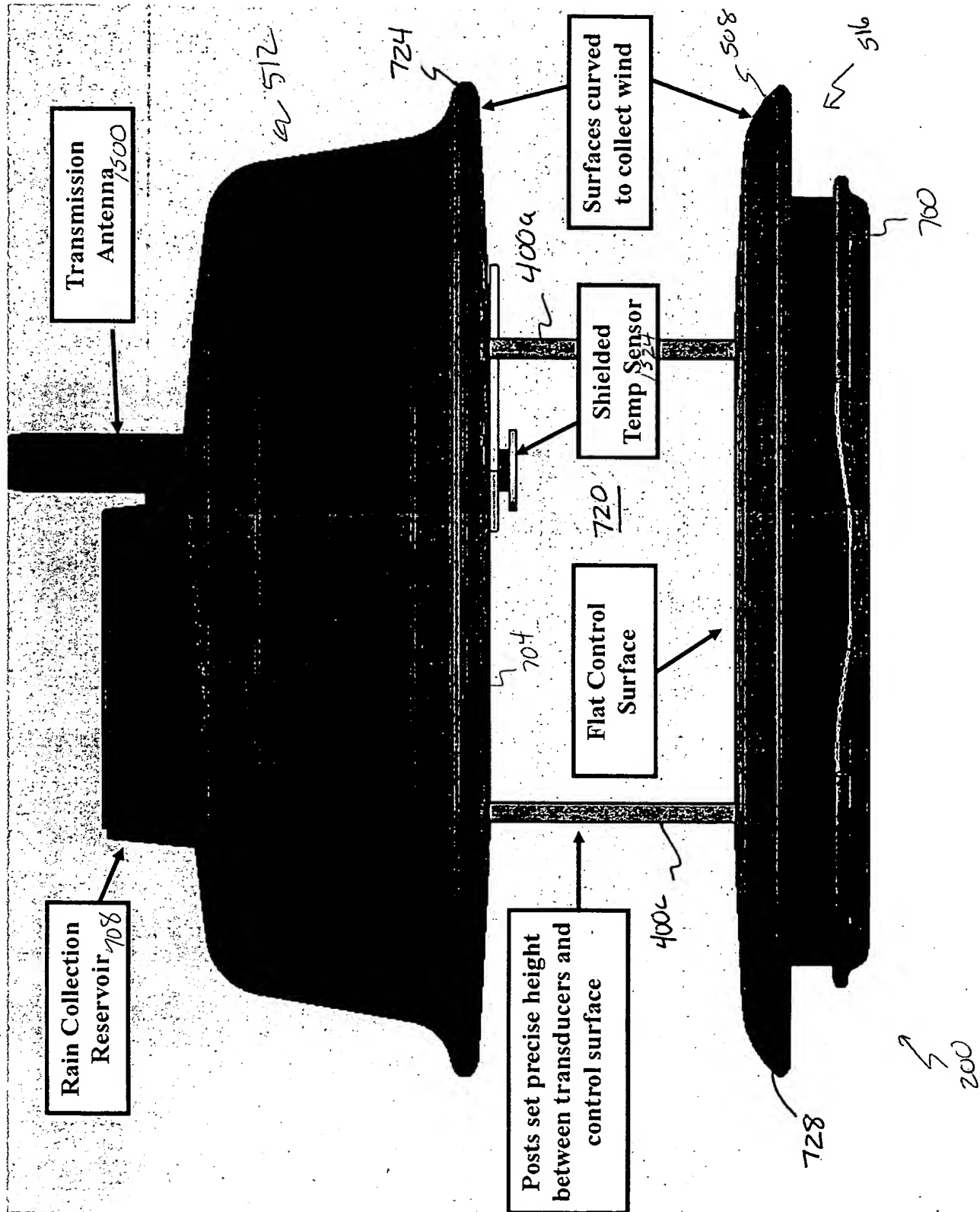


FIG. 7

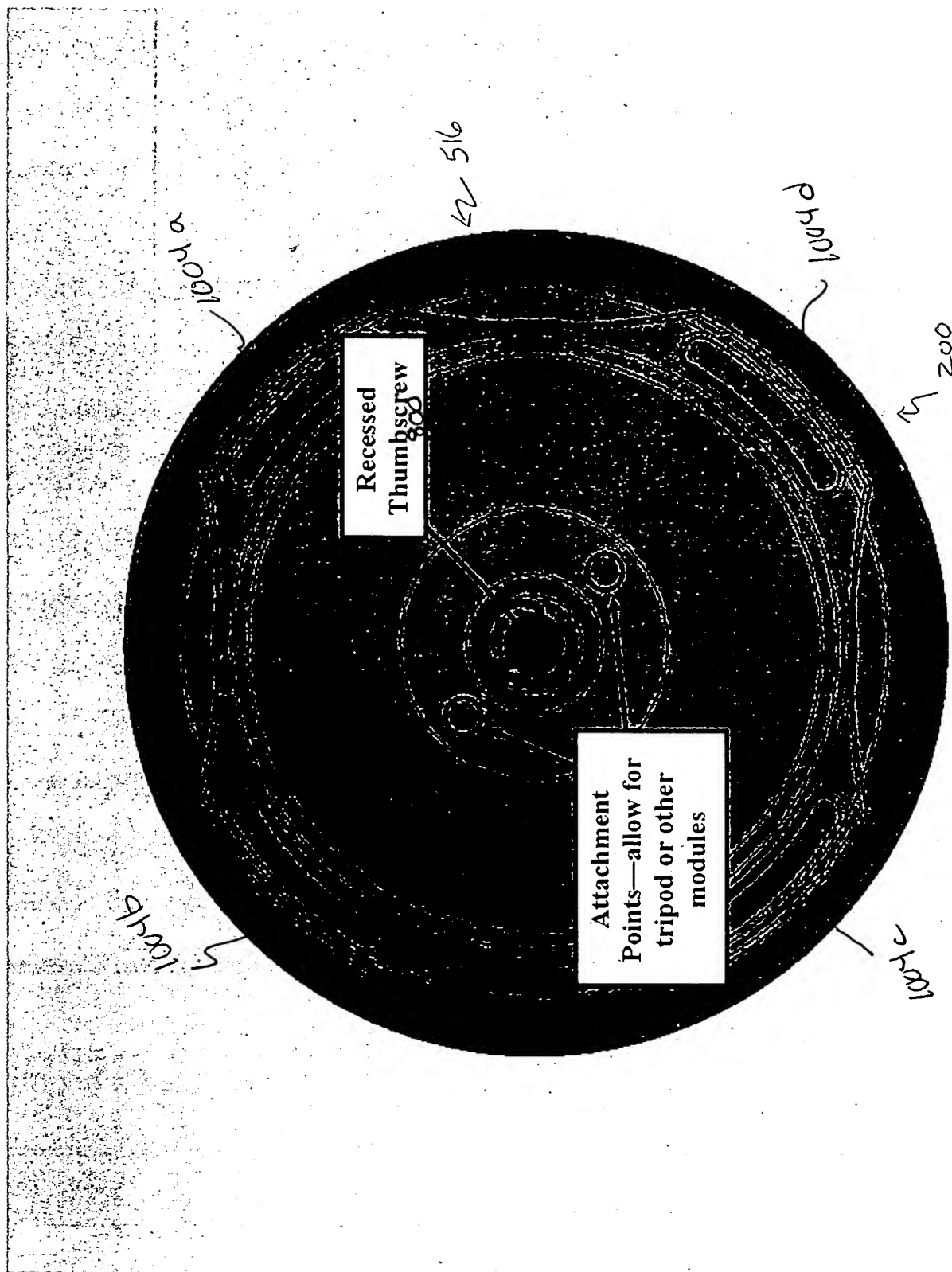
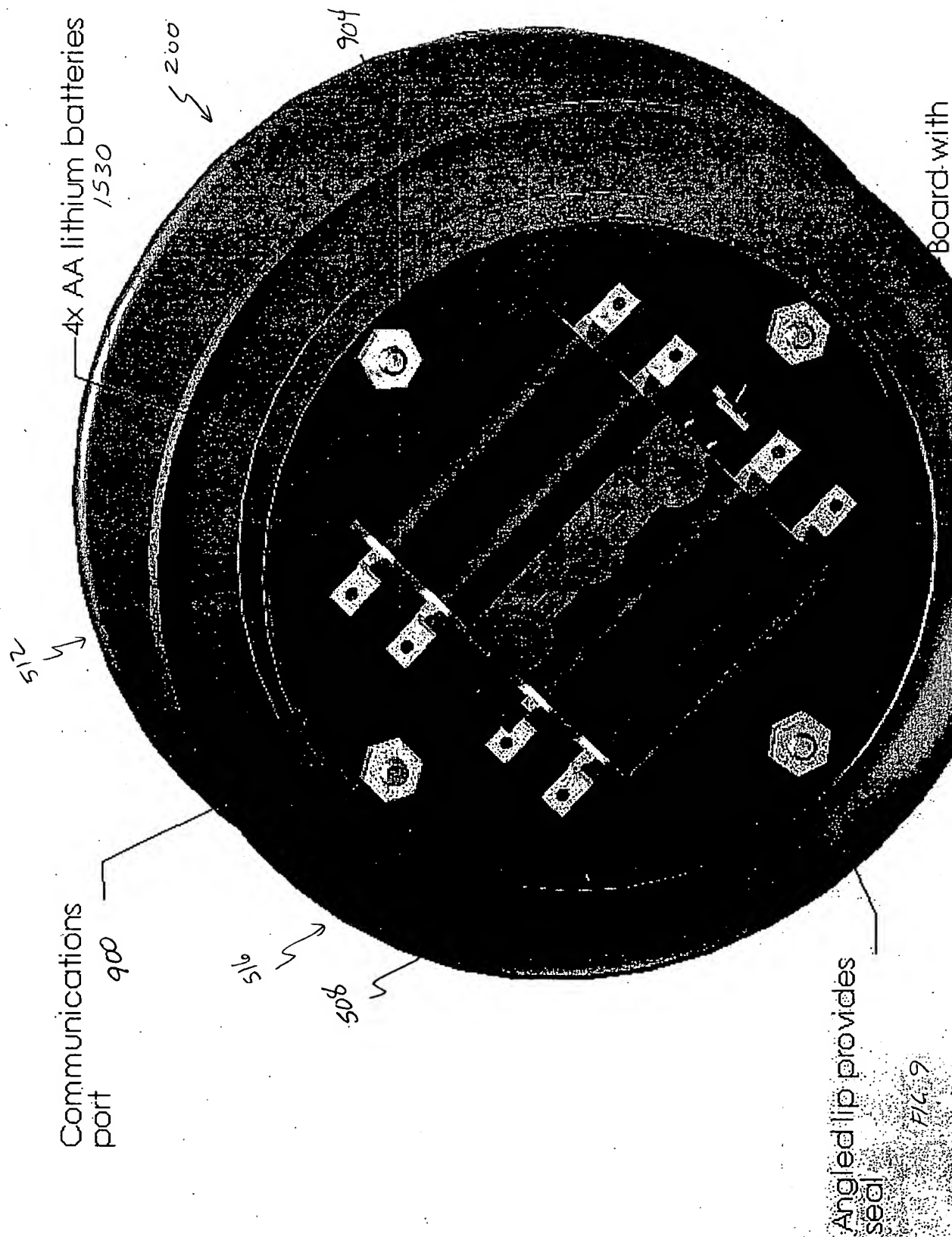


FIG. 8



4x AA lithium batteries
1530

1009

700

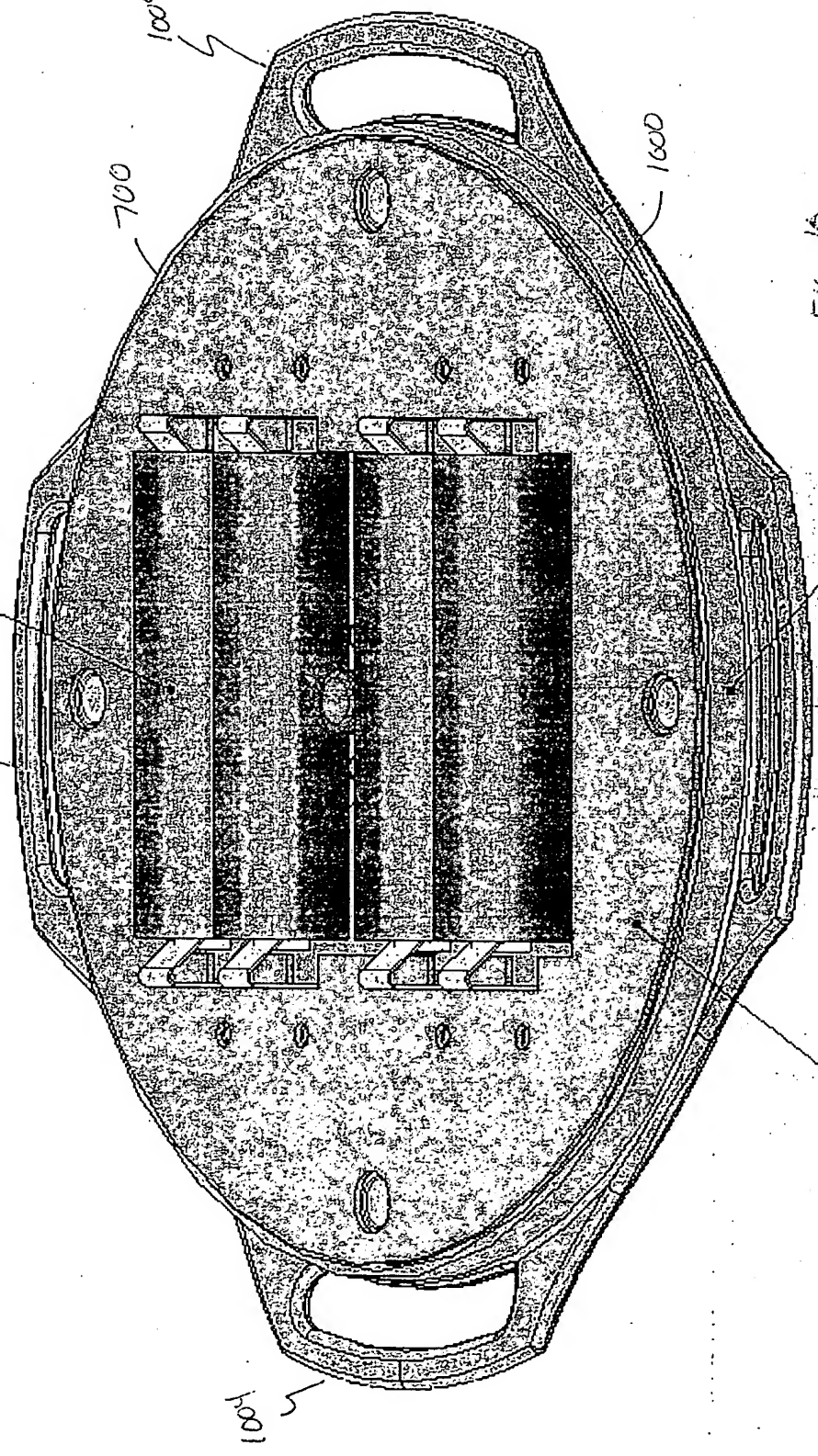
1009

1000

FIG. 1b

lip provides seal for bottom

Power board with
additional circuitry



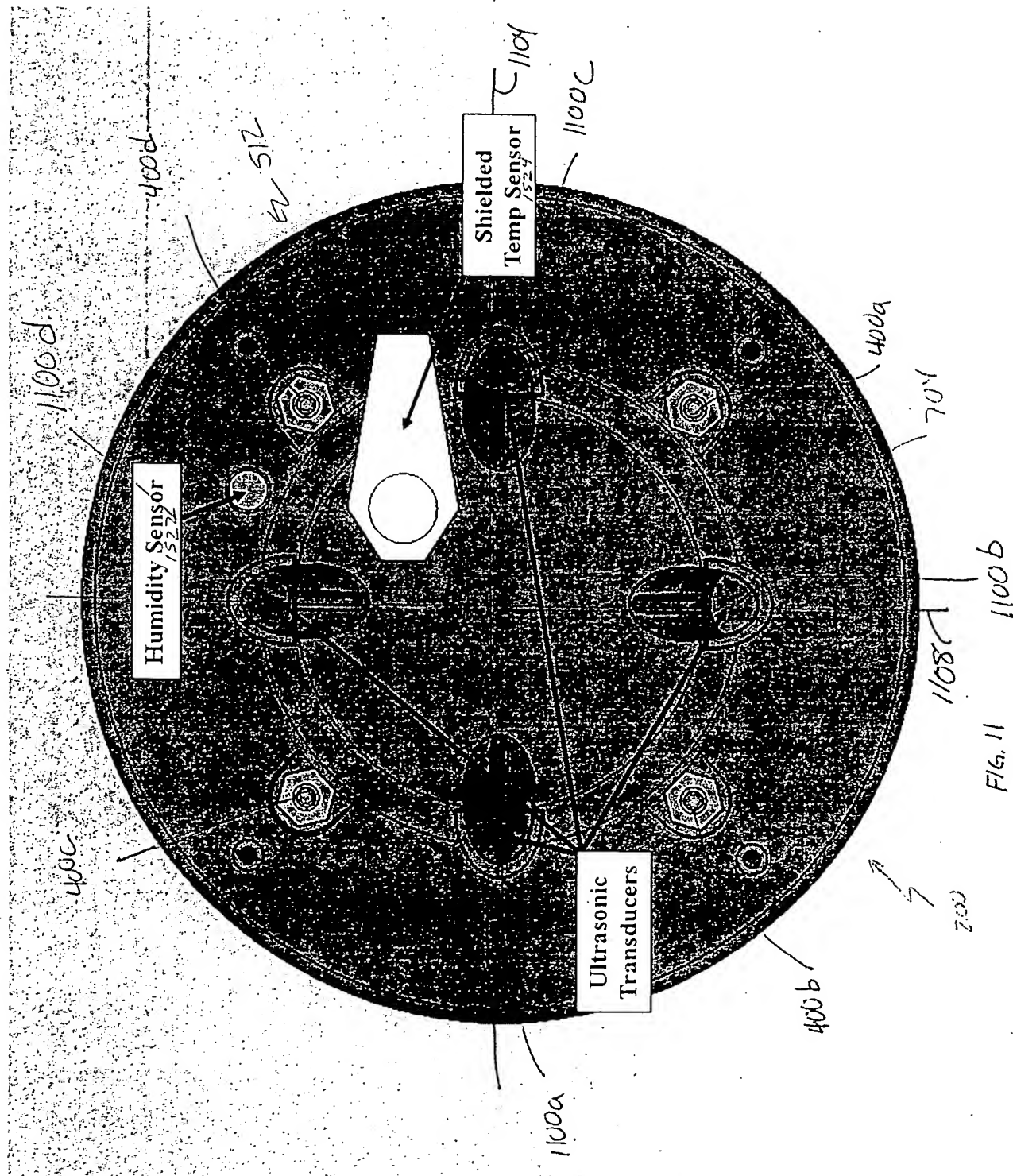


FIG. 11

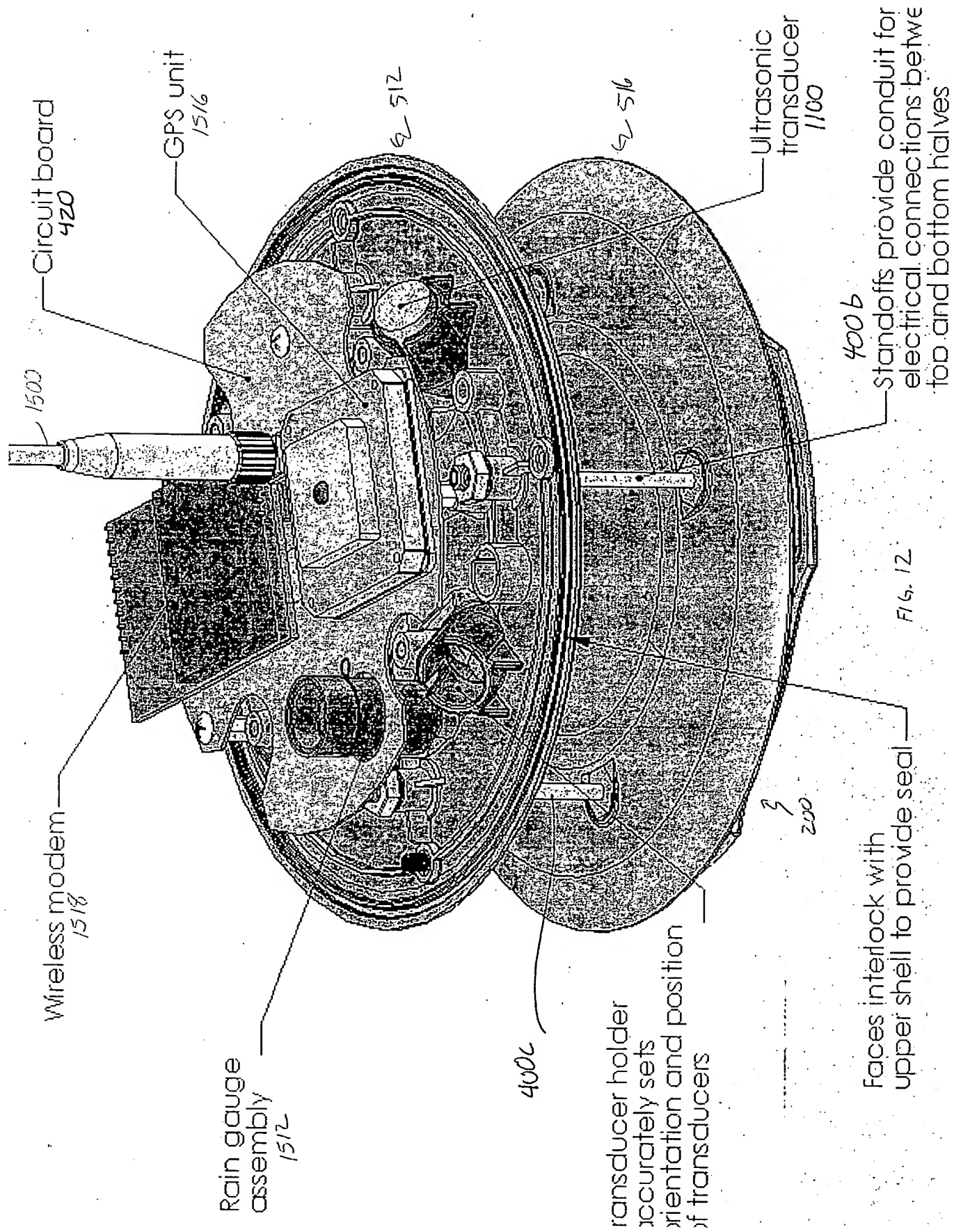


FIG. 12

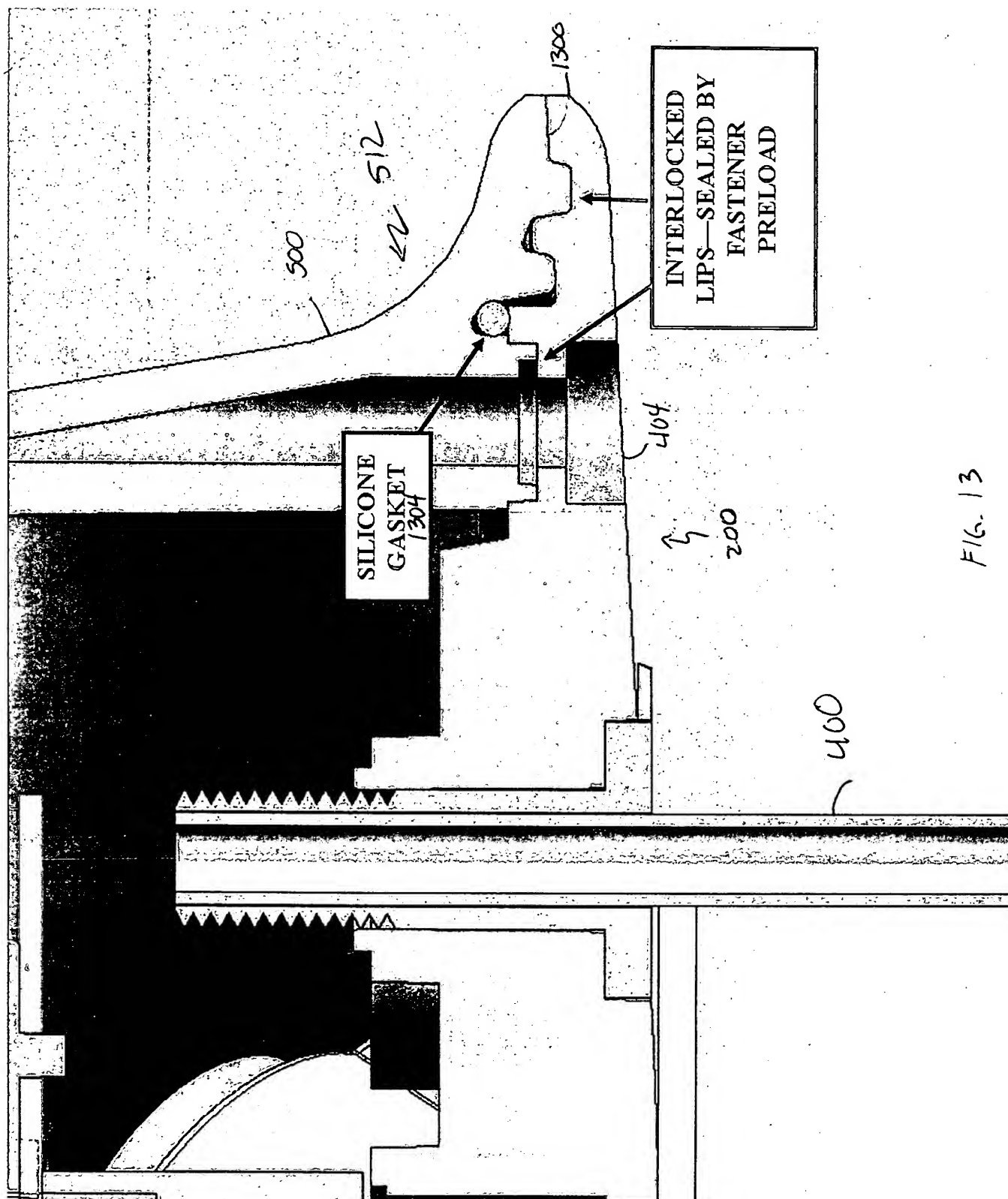
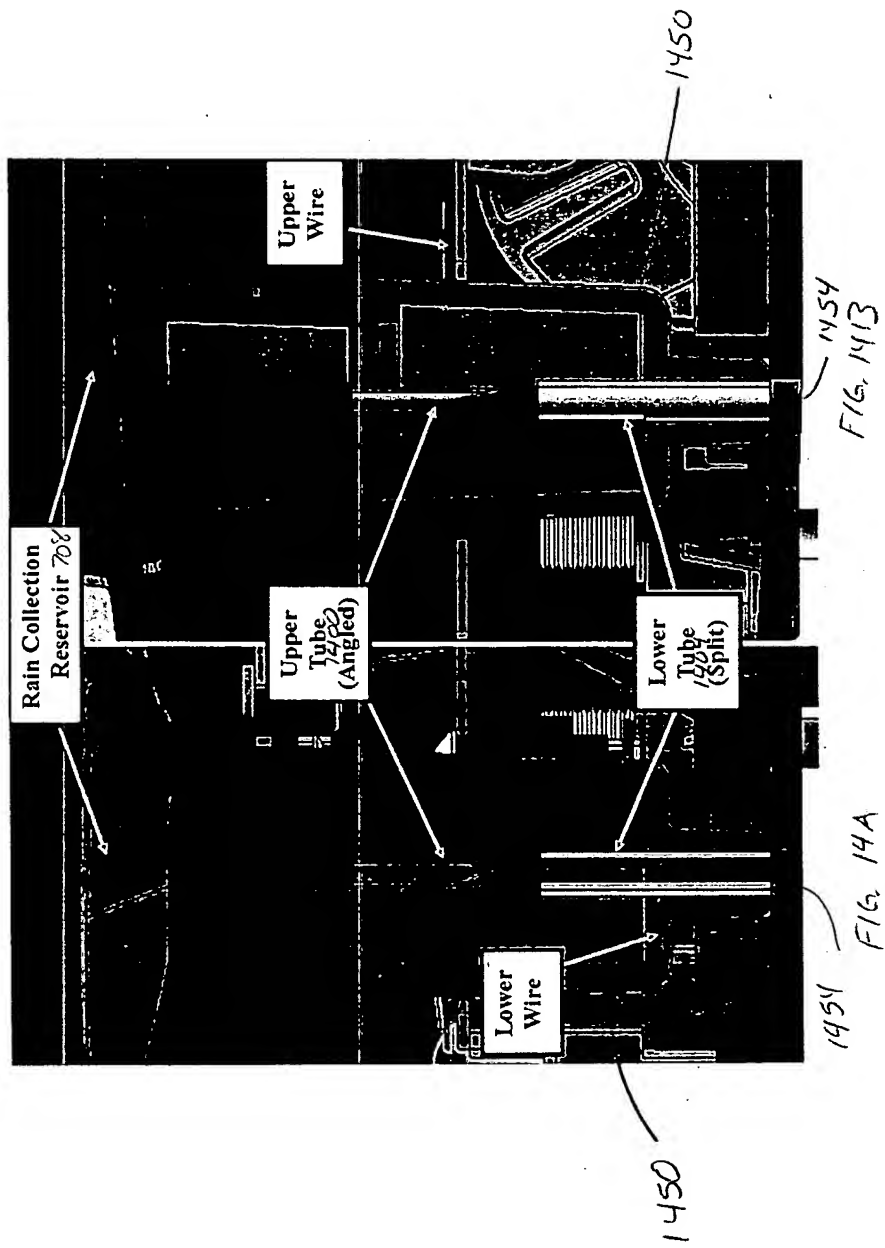
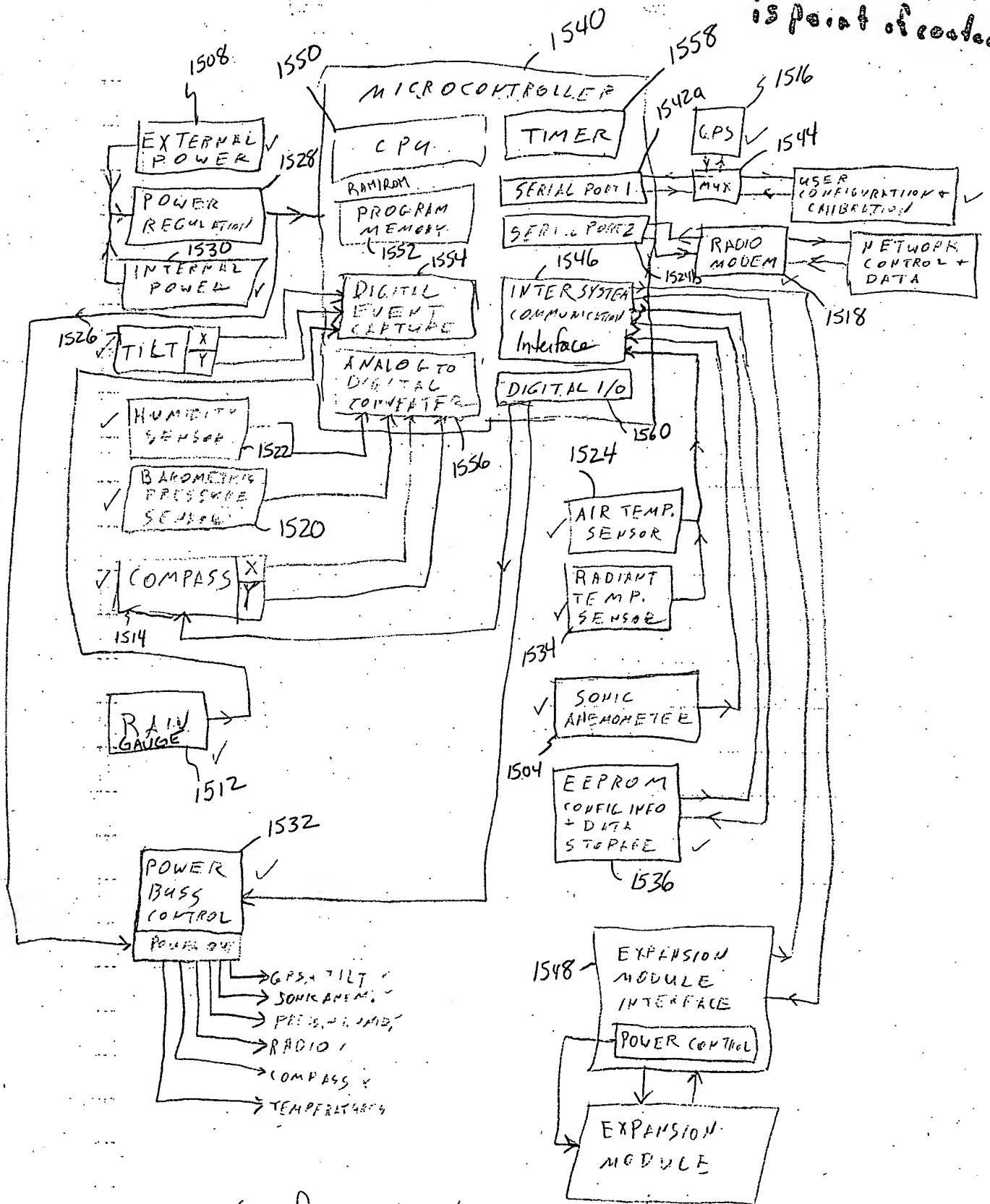


FIG. 13



Electrical Flow

Mike O'Connor
is point of contact



→ paragraph for each item

Sensor Unit	Branch	Next Scheduled Communication	Neighbor List
1	1	1:30 pm	2 3 4
2	1	1:30 pm	1 3 4
3	1	1:30 pm	1 2 4
4	1	1:30 pm	1 2 3
⋮	⋮	⋮	⋮
N	M	3:00 PM	X Y Z

1700

1704

F/G, 17

1708

1712

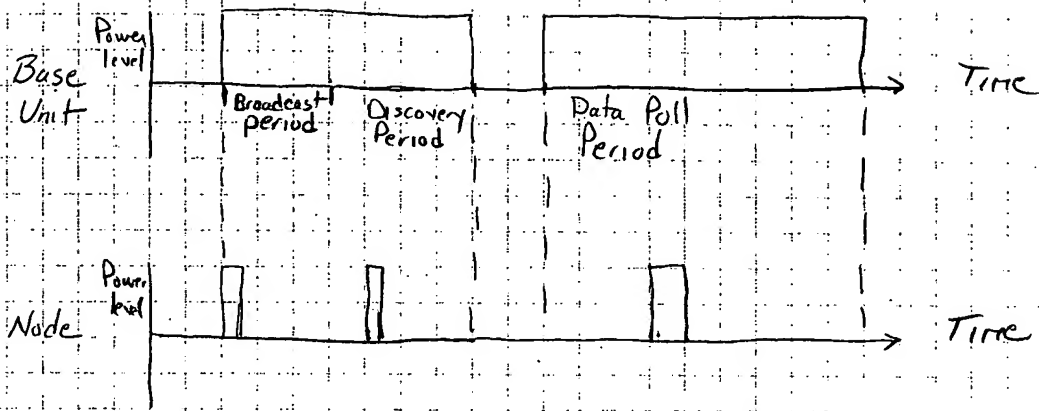


FIG 18

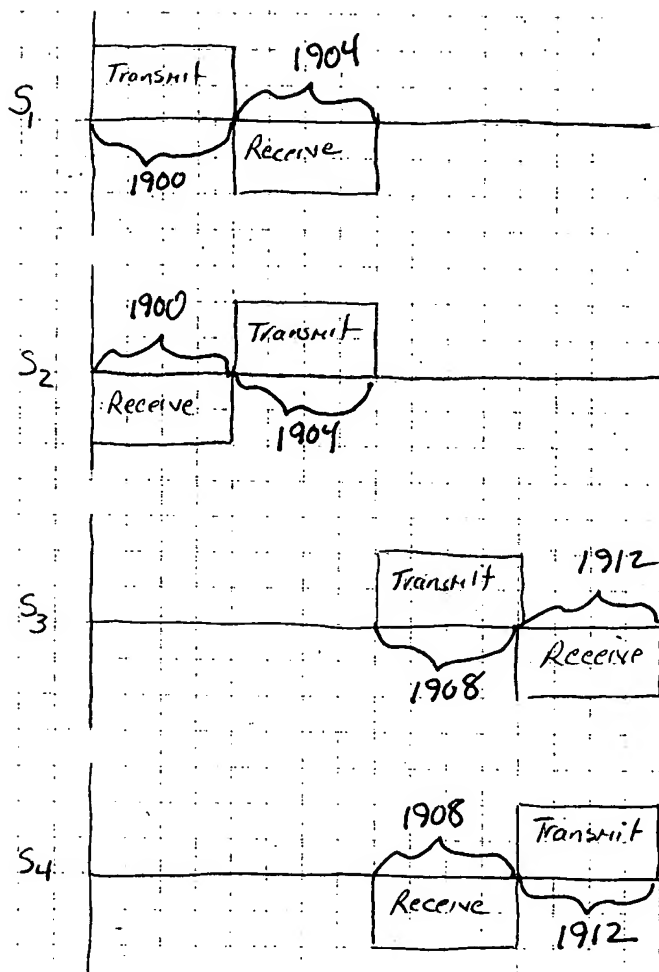


FIG. 19

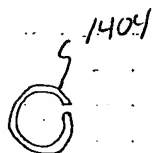


FIG. 20

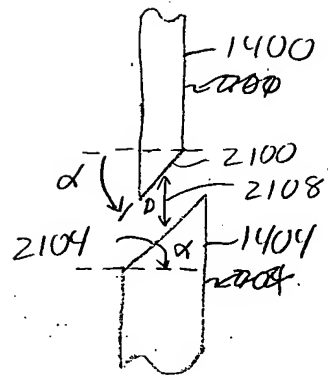
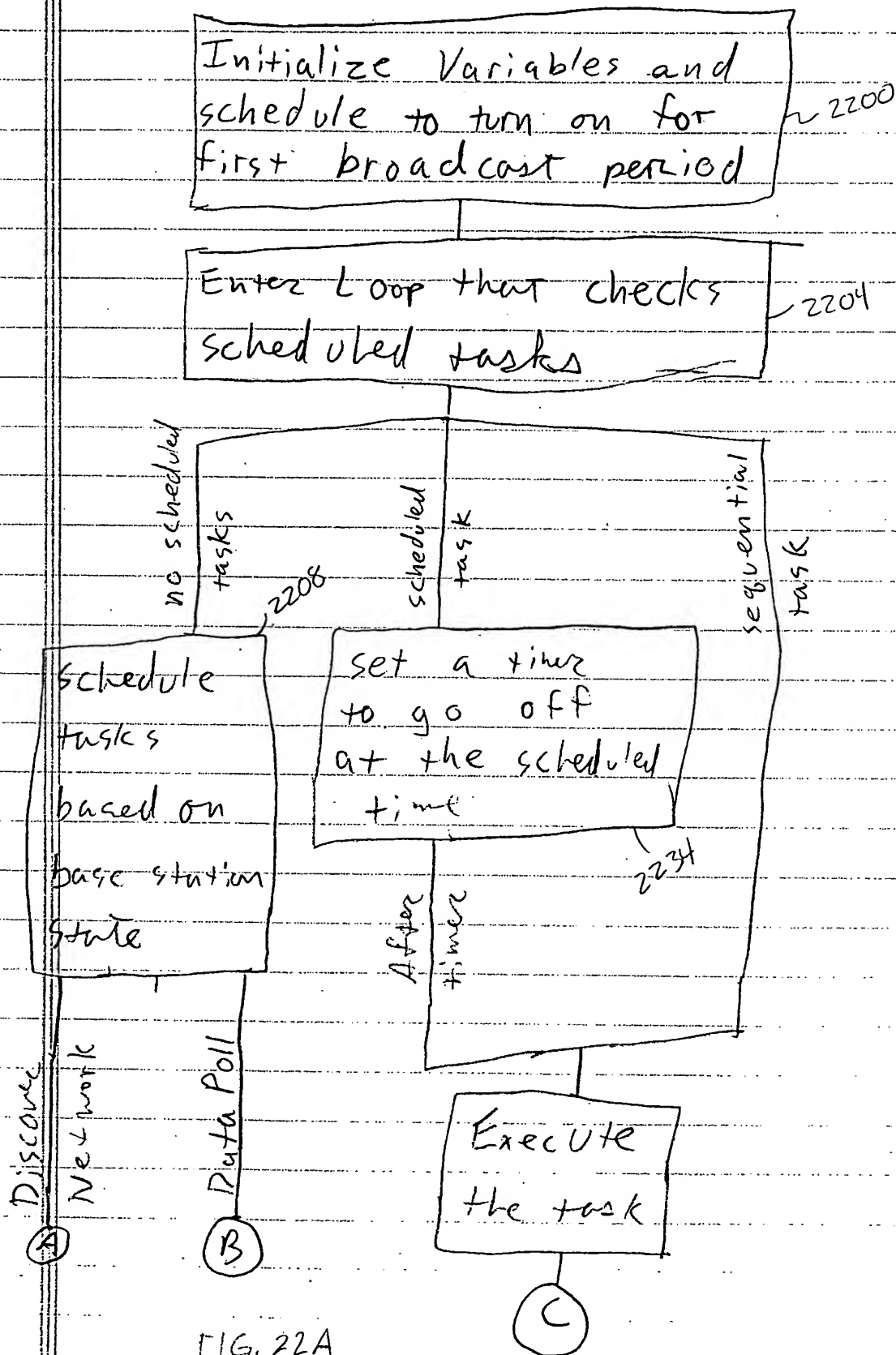


FIG. 21



(A)

Just Finished Discovering
Network so schedule
Data polls or another
broadcast if network
is empty. Change state

Network
Not empty

Network
Empty

Schedule each
network branch
to turn on
to report + its
data

Schedule to turn
on and broadcast
at the next broadcast
period

Schedule to collect
data from each
MSP

Tell each MSP
its next turn on
time and turn
them off

Return to the loop
checking the next task

FIG. 22B

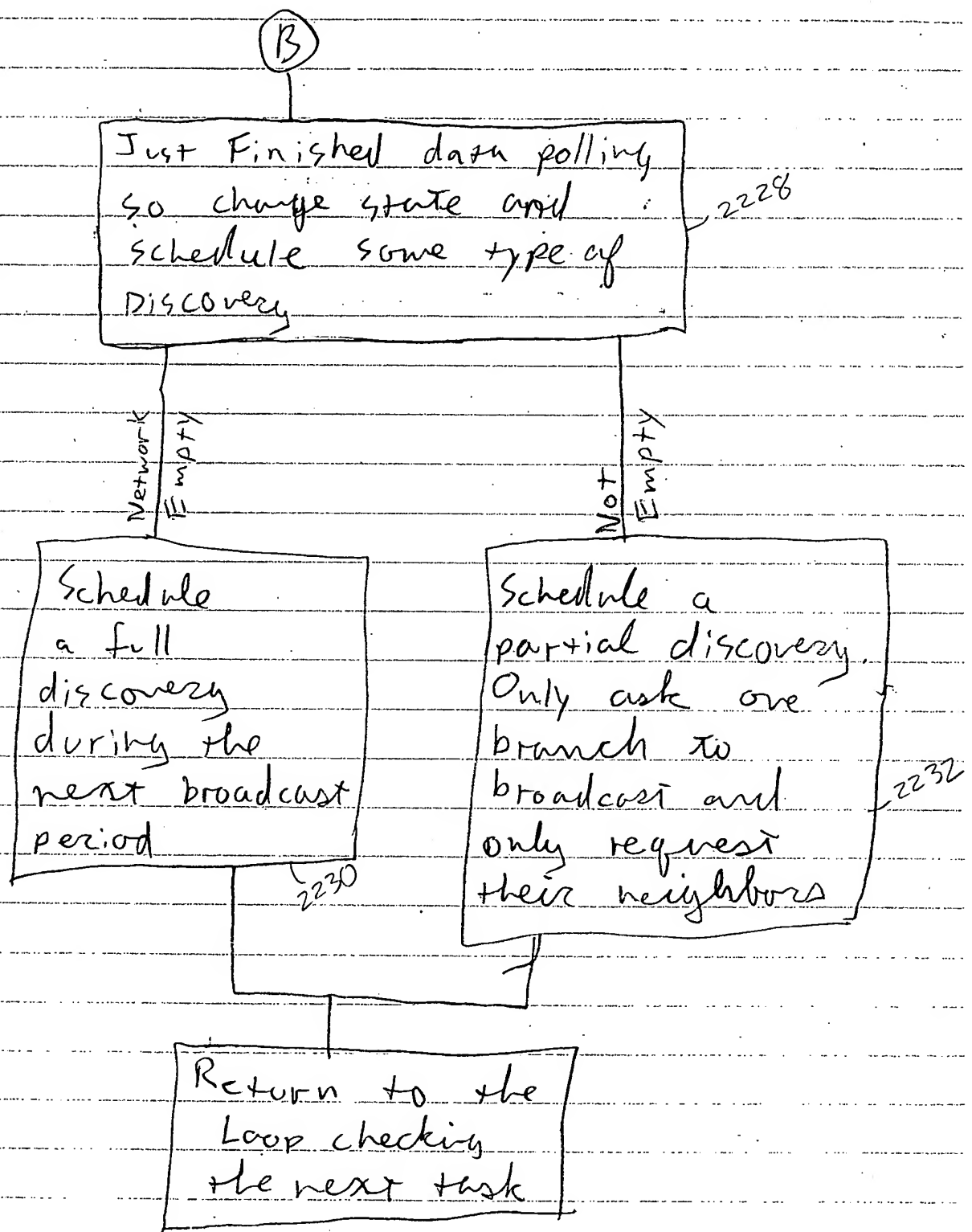
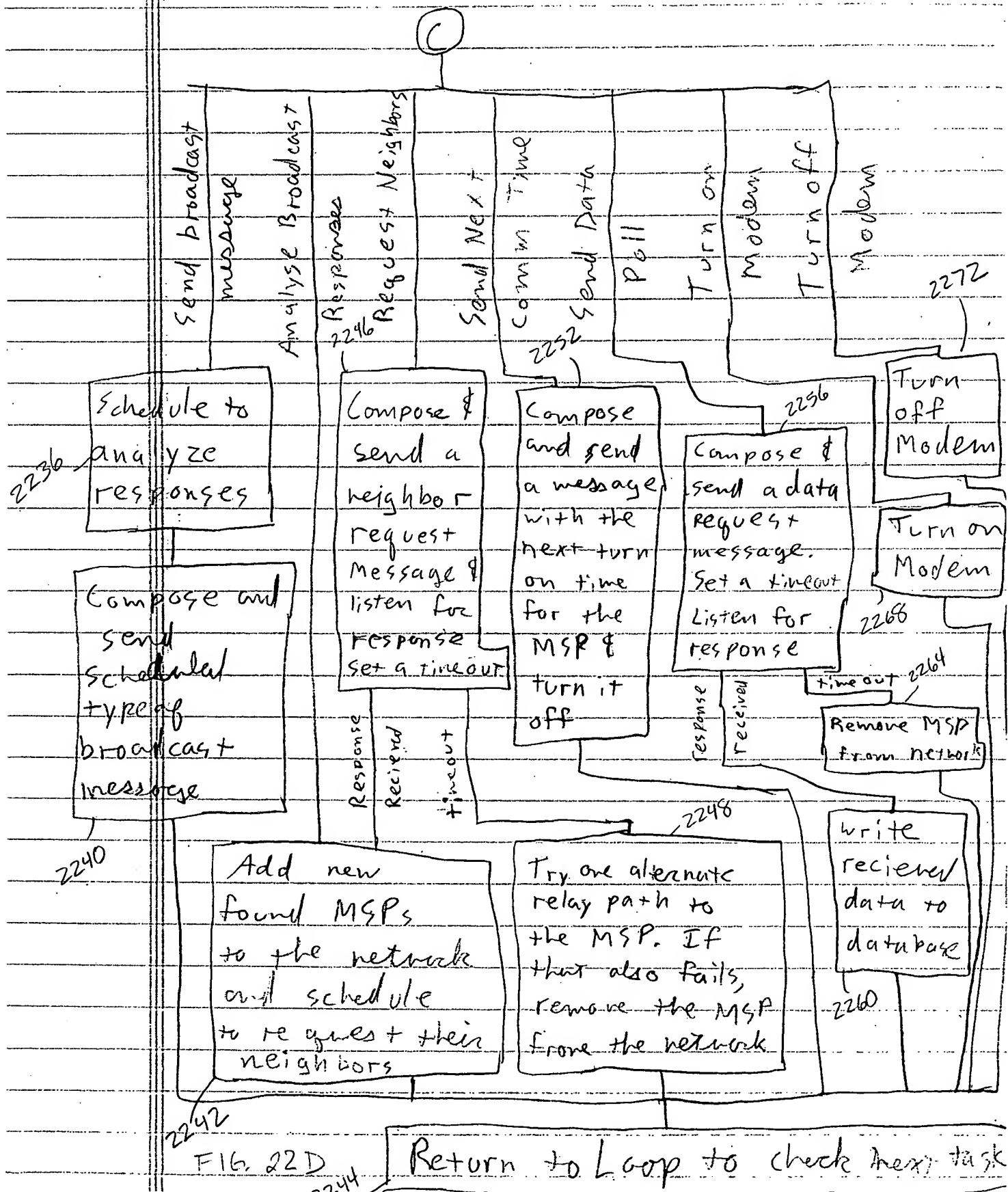


FIG. 22C



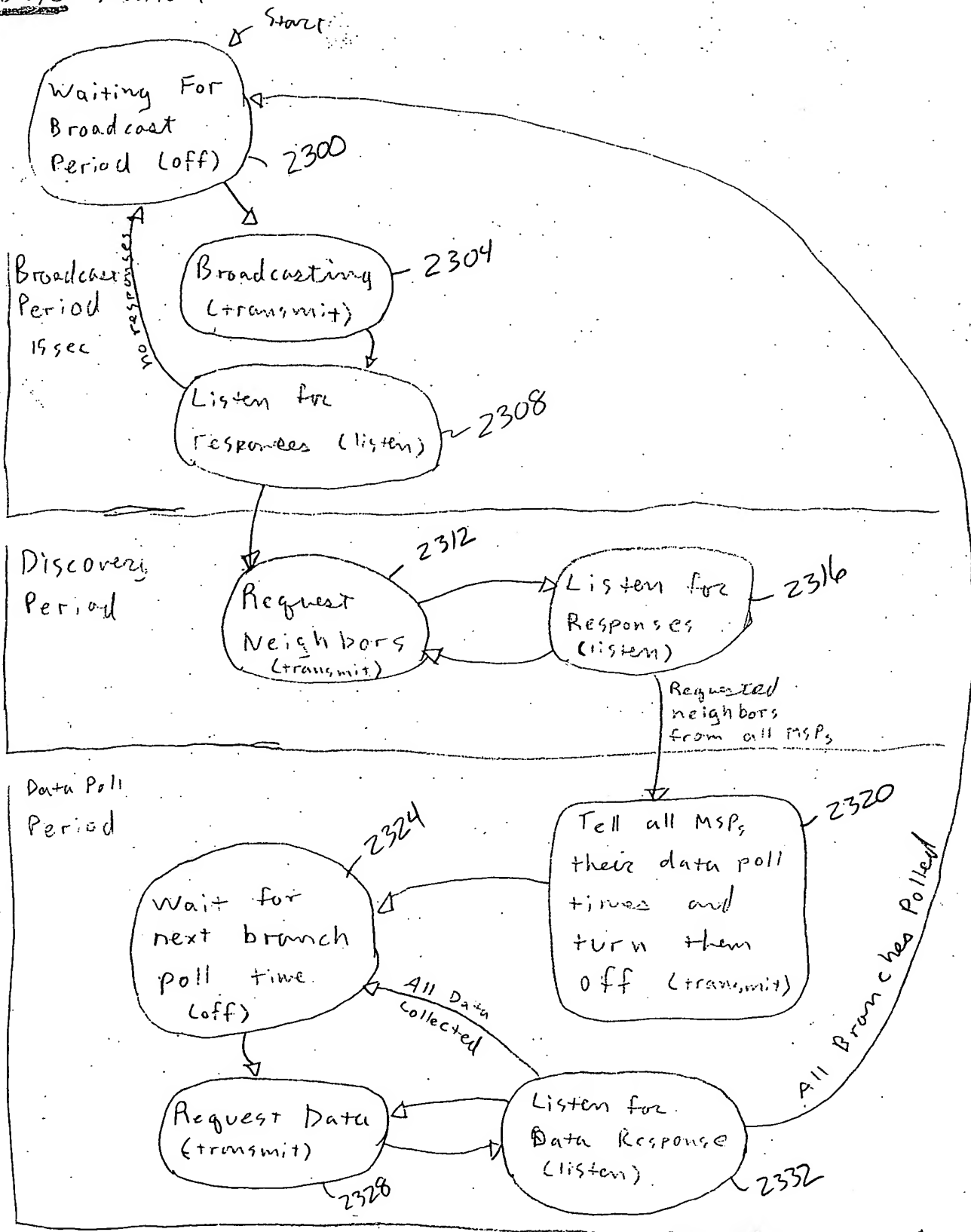


FIG. 23

MIST

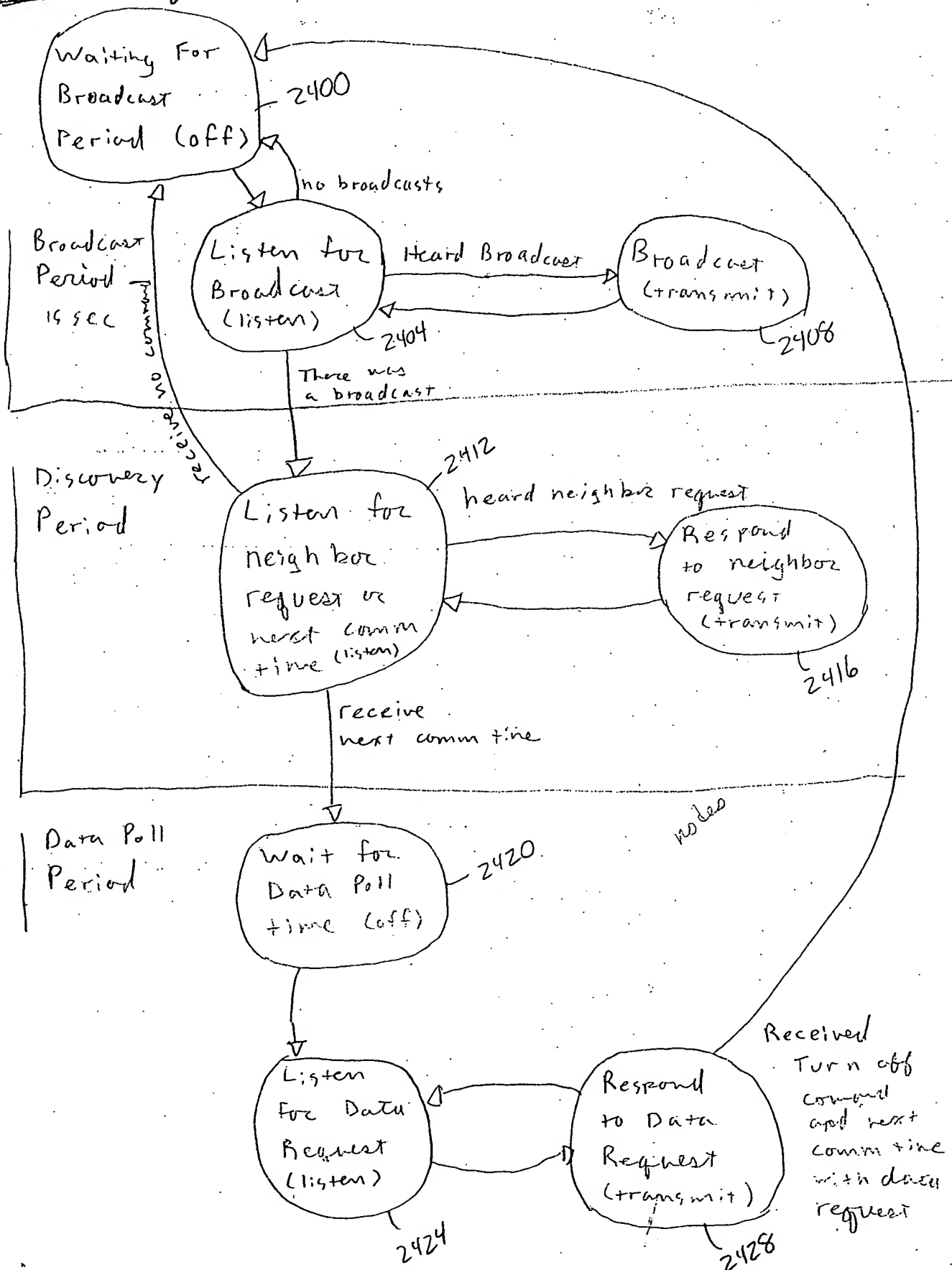


FIG. 24